

113-10.

AUG 1 2 1938

A.I.A FILE No. 25-C-31

**A NEW FINISHING
SYSTEM FOR**

Architectural

**IRON AND STEEL PRODUCTS
INCREASES FINISH DURABILITY**



A FEW of the major items of iron and steel equipment used in the modern building on which Parker Processes are used to provide protection from rust and give greater permanence to paint finishes.

Steel Sash • Window Screen Frames • Eave Troughs • Down Spouts • Porch Rails • Balcony Rails • Medicine Cabinets • Switch Boxes • Air Conditioning Units • Doorway Grilles • Stair Rails • Iron Fencing and Gates • Elevator Cabs • Garage Hardware • Galvanized Roofing and Shingles.



PAINT ADHESION AND PROTECTION

from
RUST



A LONG with modern development in building design and the refinement of structural units have come advances in protective finishes for iron and steel accessories for all types of buildings.

Twenty-three years ago, Parkerizing, the first Parker Process, came into limited use by architects and builders principally as a protection from rust for ornamental iron. During the passing years, constant research has created new and better Parker Processes, and has continuously extended their field of usefulness. The greatest step forward came with the introduction of Bonderizing, which radically reduced processing time, and consequently, costs of application.

Bonderizing has attained world-wide acceptance as an economical and efficient finishing aid on some of our finest iron and steel products, such as automobiles, refrigerator cabinets, washing machines and scores of other high grade units. Now it is improved to a point where it is being used in the mass production finishing systems of most of the leaders in the manufacture of steel sash, also by manufacturers of air conditioning equipment, galvanized steel sheets, medicine cabinets, switch boxes and many other items used in the building field.

In most cases it is possible to buy iron or steel building equipment with Bonderizing applied as part of standard finishing practice.

The desirability of Bonderizing on metal that is to be exposed either to the weather or inside moisture and humidity, is a well known and demonstrable fact. Carefully conducted tests prove that paint finish over properly applied Bonderizing increases finish effectiveness and retains finish appearance anywhere from three to five times longer than the same finish over bare metal. This has the effect of not only preventing the untimely development of corrosion, but reduces the cost of upkeep. Less frequent reconditioning is necessary and hence the cost of maintenance is lowered. Also in many cases, buildings are saved from unsightly stains caused by dripping rust where lack of proper protection has permitted paint to peel from iron or steel equipment.

For these reasons, a plus service can be given the building owner if Bonderizing or Parkerizing is specified on any metal accessories that are to be exposed to weathering or humidity. Specify Bonderizing if the equipment is to be coated with baked on paint—Parkerizing for ornamental iron or similar items.

JOIN THE WAR *Against* RUST

AN IMPROVED FINISHING SYSTEM MADE POSSIBLE BY BONDERIZING

For years Bonderizing was used mainly on products made from flat rolled steel sheets, but now Research has widened its utility to include fabricated hot or cold rolled stock such as is used in steel sash, giving this modern building equipment the ability to withstand rigorous exposure and render long, maintenance-free service.

Because of recent chemical improvements in Bonderizing and the short processing time, it has been adapted to mass production methods in the steel sash industry. With especially engineered equipment steel sash is now hung on a continuous conveyor at one point, passing through automatic cleaning, rinsing, Bonderizing, drying, primer paint dipping and baking without being handled again until it reaches an unloading station.

As the sash leaves this process, it is ready for installation in the building, with a substantial foundation for such final finishes as may be deemed necessary, either for further protection or decorative purposes.

The following manufacturers have complete conveyor equipment for Bonderizing and applying baked primer to their steel sash production:

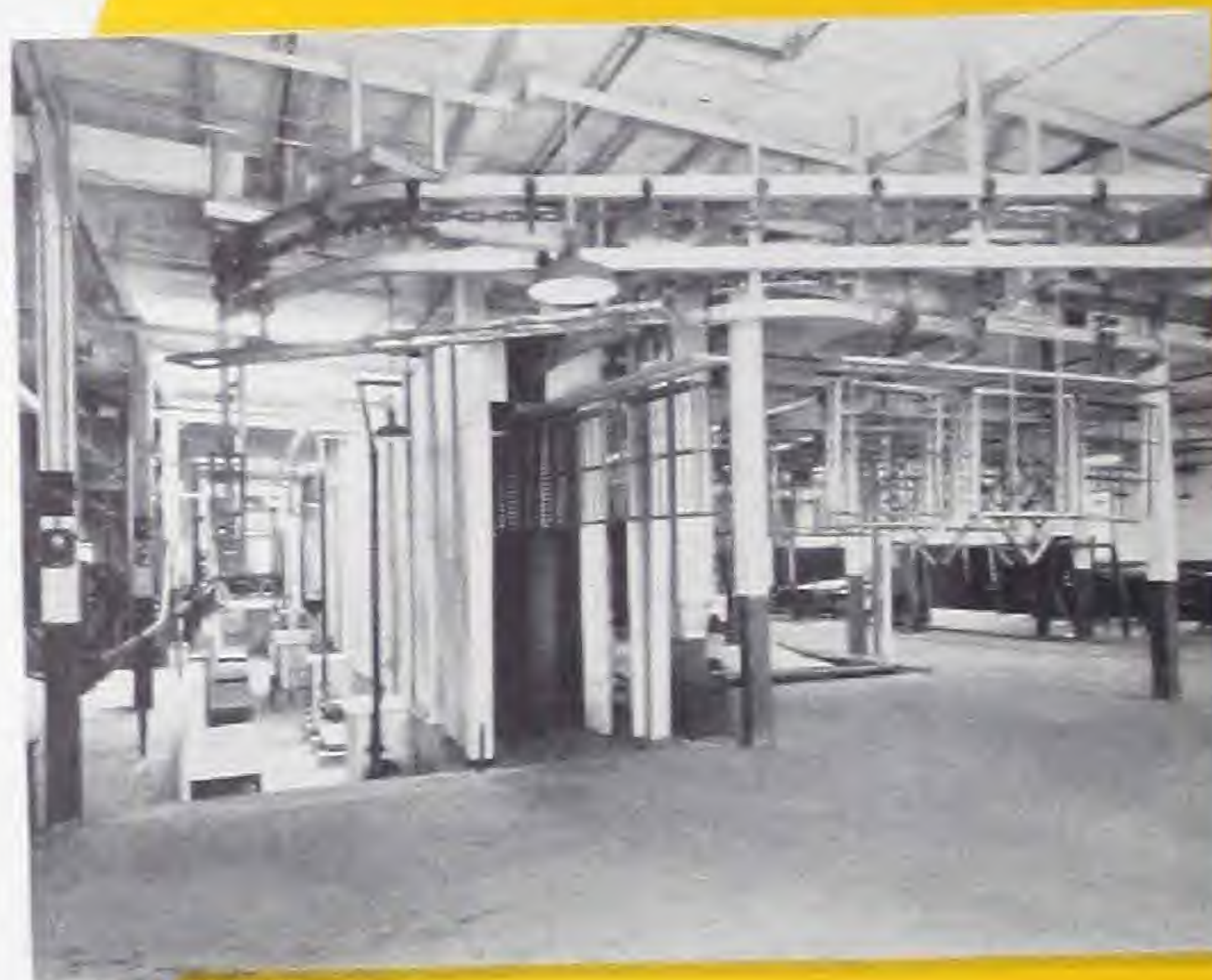
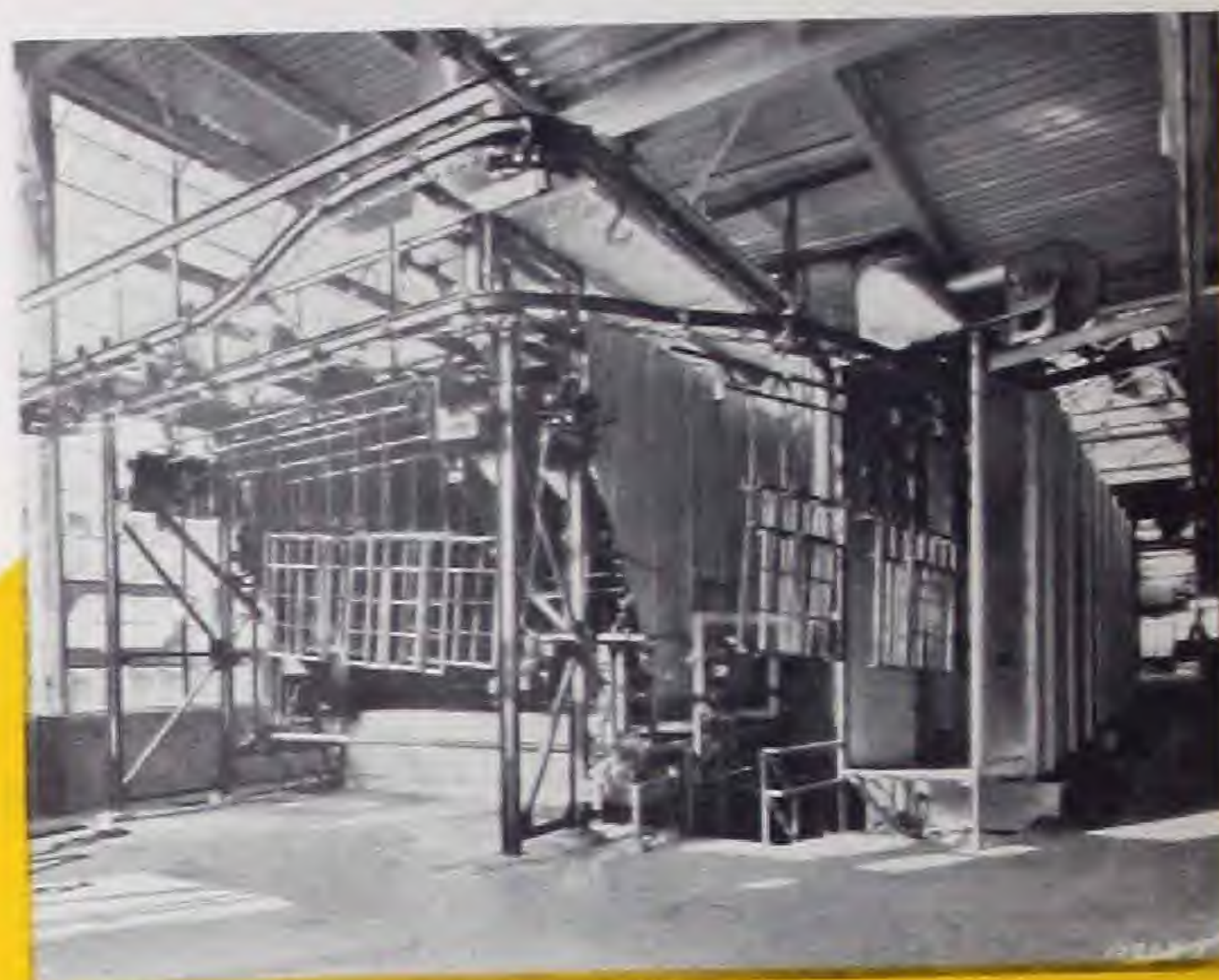
CAMPBELL METAL WINDOW CORPORATION
Baltimore, Maryland

DETROIT STEEL PRODUCTS CO.
Detroit, Michigan

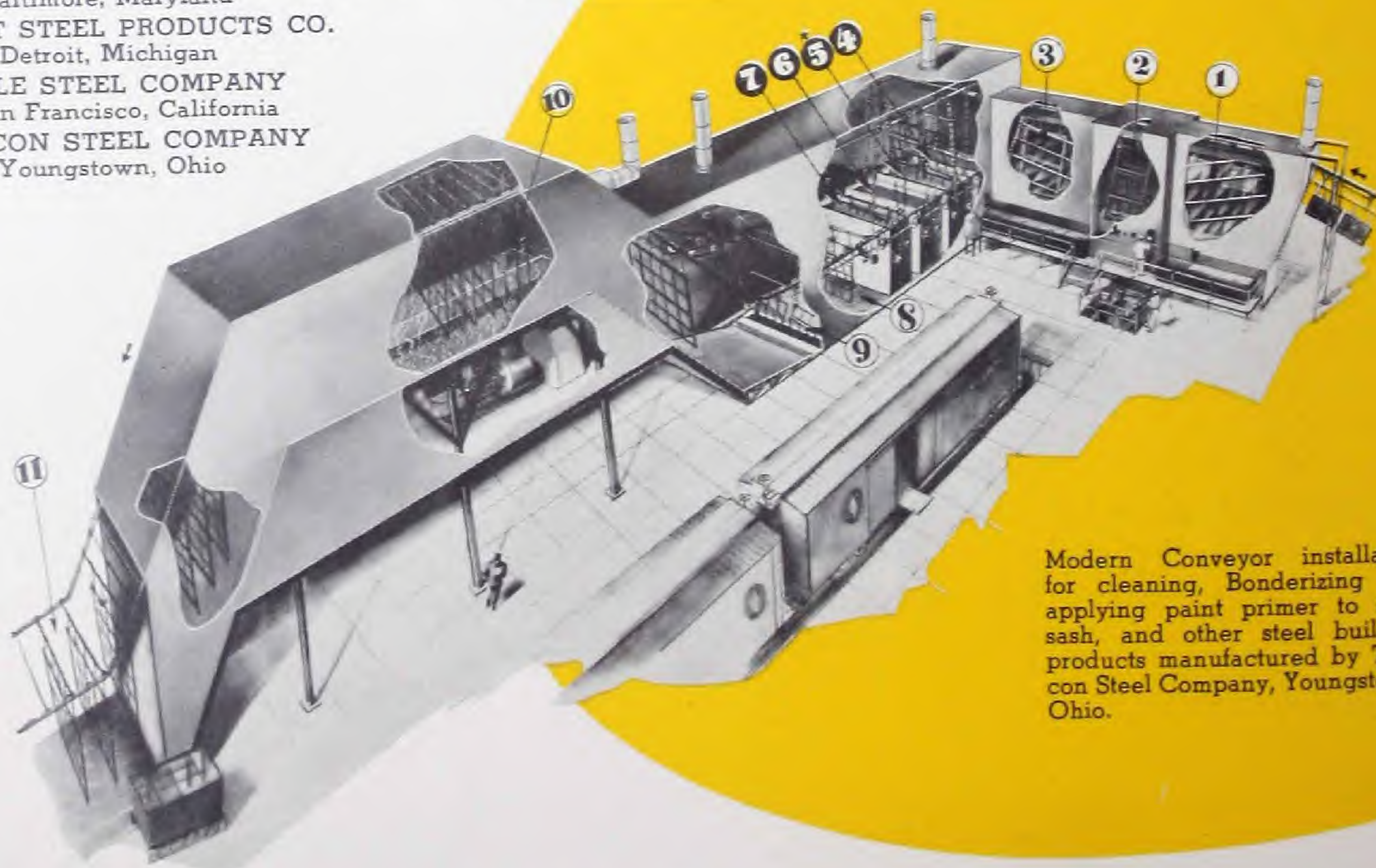
SOULE STEEL COMPANY
San Francisco, California

TRUSCON STEEL COMPANY
Youngstown, Ohio

Scene in the Bonderizing section of the Detroit Steel Products Company, where Fenestra sash receive their protection from rust.



A view of Bonderizing in process at the Bremen, Indiana, plant of the Campbell Metal Window Corporation; Campbell also has a large installation at their Baltimore factory.



Modern Conveyor installation for cleaning, Bonderizing and applying paint primer to steel sash, and other steel building products manufactured by Truscon Steel Company, Youngstown, Ohio.

BONDERIZING GIVES STEEL SCREEN FRAMES AND HOUSINGS A PAINT HOLDING QUALITY



A beautifully screened porch by the Chamberlin Metal Weather Strip Company, Detroit, Michigan, on which Bonderized equipment was used.



A Typical metal framed screen produced by Johnson Metal Products, Erie, Pa., steel frame Bonderized.

Like the metal window sash the complementary screens, with their metal frames and housings, are continually exposed to the weather. More than that they are continually under the eyes of the owner who is sure to resent the early appearance of rust on a unit that is always before him.

Because of the structural nature of the frames, housings, guides and fittings, reconditioning is difficult, if not impossible. Because of this many owners are inclined to put off refinishing until rust entirely ruins the units. He then replaces them, with the fervent wish that someone would make a screen with a finish that would resist rust.

Fortunately his wish can now be fulfilled, as some of the largest manufacturers in the industry are using Bonderizing for this very purpose. The finish on metal parts of both window and porch screen frames are not only given increased protection, but Bonderizing provides a paint base that holds the finish and prevents chipping or peeling. This combination provides a more substantial type of finish that will prolong and maintain the fine appearance necessary on this equipment, even with the year around exposure to which it is subjected.

PAINT FINISHES STABILIZED ON ELEVATOR CARS

While most of us are more familiar with cars for horizontal traffic there are millions of us who must use cars confined to vertical lanes, moving up and down without much thought as to how they are made.

In the thousands of palatial office and apartment buildings all over the country provision must be made for this vertical traffic and the cars to serve it must conform with standards set up for the general building scheme. The cars carrying this vertical traffic must be in keeping with their surroundings.

In addition to artistic design and structural efficiency, the beautifully finished metal panels, as well as the finely executed grilles and fixtures, should carry a finish that will retain its appearance for the life of the car. Leaders in this field are using Parker Processes for finish stabilization. While these cars are not subjected to outdoor exposure, humidity perspiration from hand marks, and moisture are often present, which in time is conducive to rust and paint deterioration. Parker Processes provide a secure anchorage for the paint, assures adhesion and stops the spread of rust around accidental scratches or other breaks in the paint film.



Cab, Panel and Dome Parker Processing section in an elevator plant at Harrison, N. J.



Elevator Cab assembly floor in an elevator plant at Harrison, N. J.

PROTECTING BATHROOM CABINETS FROM RUST



The Bonderized "Edge-Lite"
Cabinet made by Faries Manu-
facturing Company of Decatur,
Illinois.



A popular model of Bonderized
cabinet made by the Hess Warm-
ing and Ventilating Company,
Chicago, Illinois.

Like many other items of home and hotel equipment, the familiar bathroom medicine cabinet has been steadily undergoing changes in construction and design.

In its transition from wood to steel, it has undergone structural modernization and design has been improved so that it provides a decorative addition to up-to-date bathroom fixtures.

The advantages of the steel cabinet are obvious. Being made of steel they will not shrink or warp or harbor vermin, but being made of steel it brings up some finishing difficulties that have also been met and conquered. The moist, humid atmosphere of the average bathroom created a condition that made durable finishing extremely difficult as the damp atmosphere was conductive to rust—which ruined fine appearance.

How this problem was solved is indicated by the statement of one prominent manufacturer:

"We have always put a very fine finish on Hess Cabinets and prided ourselves on it. In spite of the finest enamels and the best of workmanship in application, accidents occurred when the cabinets were in use, to scratch or chip the enamel and in the moist atmosphere of the bathroom the red disfigurement of rust would appear. Rust is now a thing of the past, for *Bonderizing binds the enamel finish to the metal*, so that it is not easily damaged and will not peel off, providing protection from rust.

"Bonderizing is the customer's assurance of the lasting fine appearance of Hess Cabinets."

JOIN THE WAR *Against* RUST

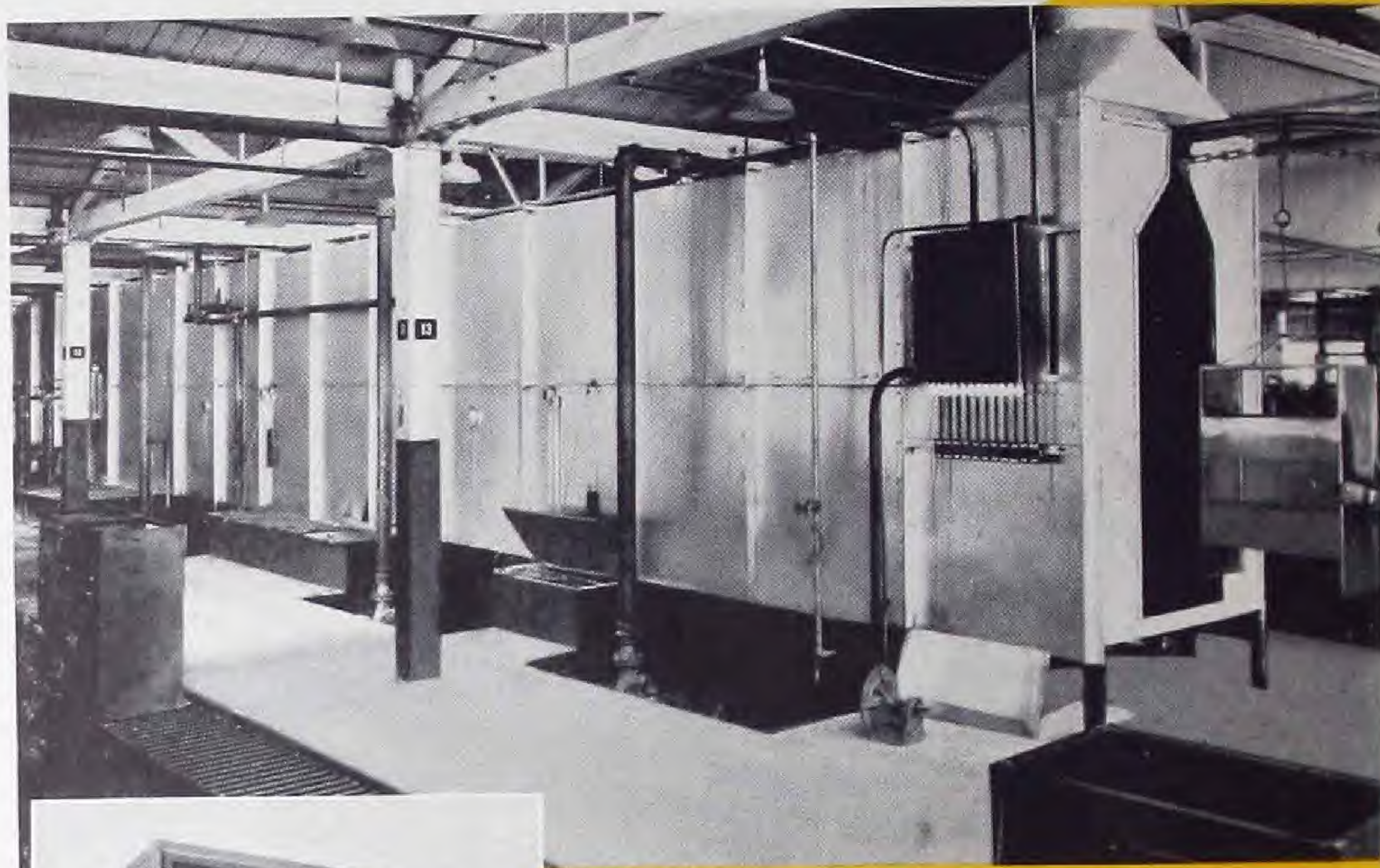
AIR CONDITIONING EQUIPMENT SEALED FROM MOISTURE AND GIVEN A BETTER PAINT BASE

Wherever we go we are subjected to natural variations in temperature, but inventive genius has devised methods of artificially maintaining in buildings a spring-like atmosphere all the year around. Now the intense heat of summer and extreme cold of winter are carefully controlled.

With modern air conditioning, the atmosphere in our stores, offices and homes can be maintained at a normal temperature in any season. It either cools the air or heats it as desired. It filters the air of dust, dirt and lint, and in winter adds the proper amount of moisture . . . in summer it removes moisture from the air.

In either cooling hot air, or humidifying artificially warmed air, moisture is always present, under conditions that are conducive to corrosion. Rust is a constant menace to the painted sheet metal housings and other parts, at the same time it is important that good appearance be maintained.

Again the chemist has cooperated with the worker in metals and provides a way to minimize the effects of corrosion and provide assurance of greater finish permanence. Now, the air conditioning cabinet is Bonderized, so that the finish is given a better foothold and rust is inhibited.



A view in the Bonderizing department of Airtel Inc., Dayton, Ohio, where air conditioning cabinets are given protection from rust.



Bonderized cabinet enclosing the Airtemp "All-In-One" air conditioner.

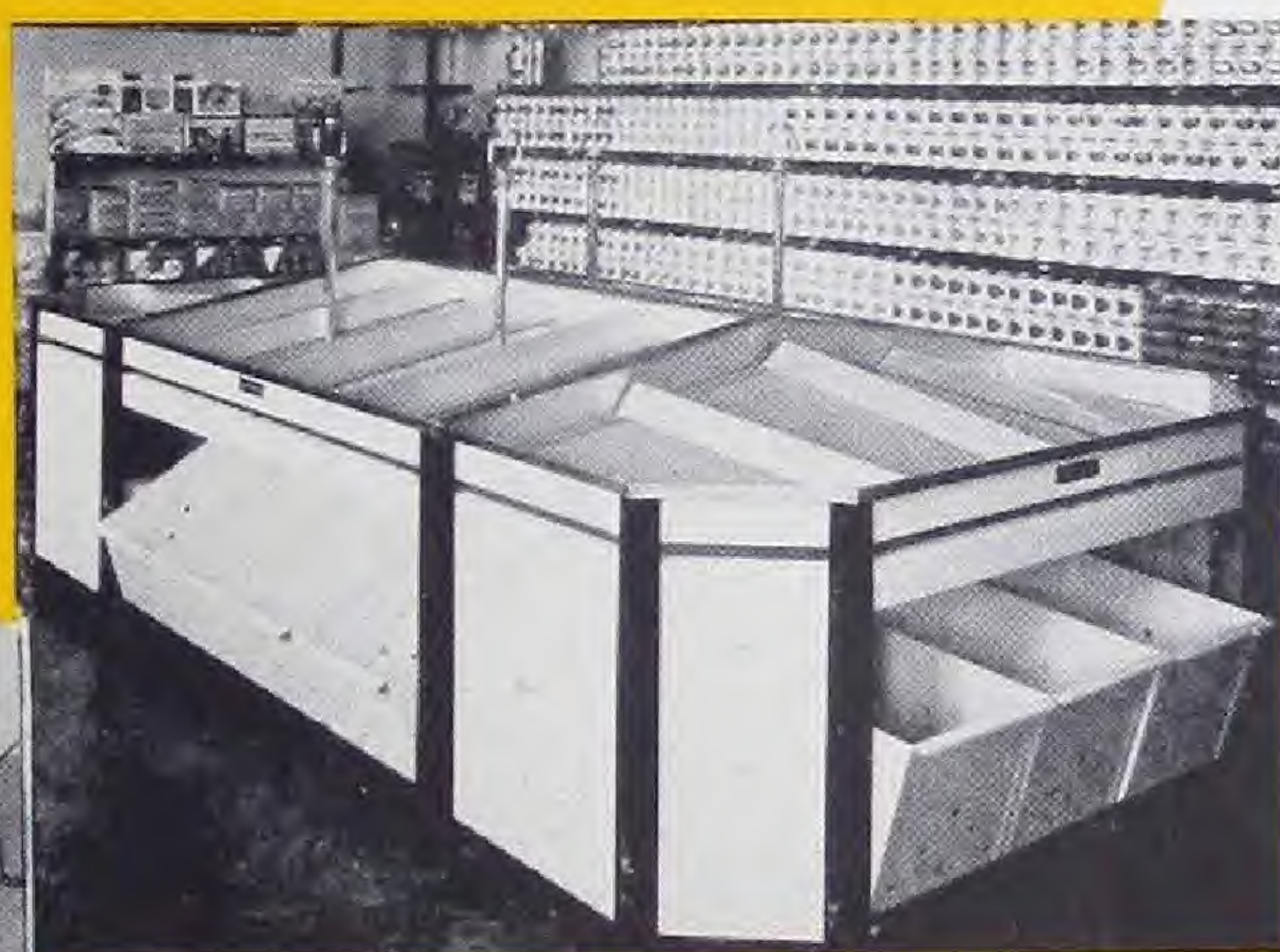


A Bonderized air conditioning unit made by the Standard Air Conditioning Company, New Rochelle, N. Y.

PAINTGRIP GALVANIZED SHEETS PARKER PROCESSED TO GIVE PAINT ADHESION



Garage doors made from PAINTGRIP sheets by the Tilt-A-Door Company, Highland Park, Michigan



The enameled PAINTGRIP sheet maintains fine appearance on display equipment.



Where PAINTGRIP sheets provide desirable paint holding qualities.

Architects, tinsmiths and builders everywhere are familiar with the lack of paint holding qualities of ordinary galvanized sheet steel, such as is usually made up into eave troughs, conductor pipe, roofing and other building trim.

In an attempt to provide adequate adhesion of paint on galvanized surfaces acid etching and weathering has been resorted to, but it has never been possible to successfully paint ordinary galvanized surfaces, even after etching or weathering. This is due to chemical action that takes place between the zinc and the paint. The zinc, and compounds present on the zinc, dry out the essential oils in the paint which are necessary to give it "life." Consequently the paint cracks and peels and results in unsightly appearance.

The American Rolling Mill Company, Middletown, Ohio, has been known for its fine galvanizing practice, which with ARMCO Ingot Iron sheets gave builders an outstanding sheet of great durability. It lacked only one quality—the assurance of positive adhesion of paint finishes. Now, even this problem is solved. Armco research engineers cooperating with the Parker laboratories have developed the "PAINTGRIP" sheet—a galvanized sheet—treated by a Parker Process.

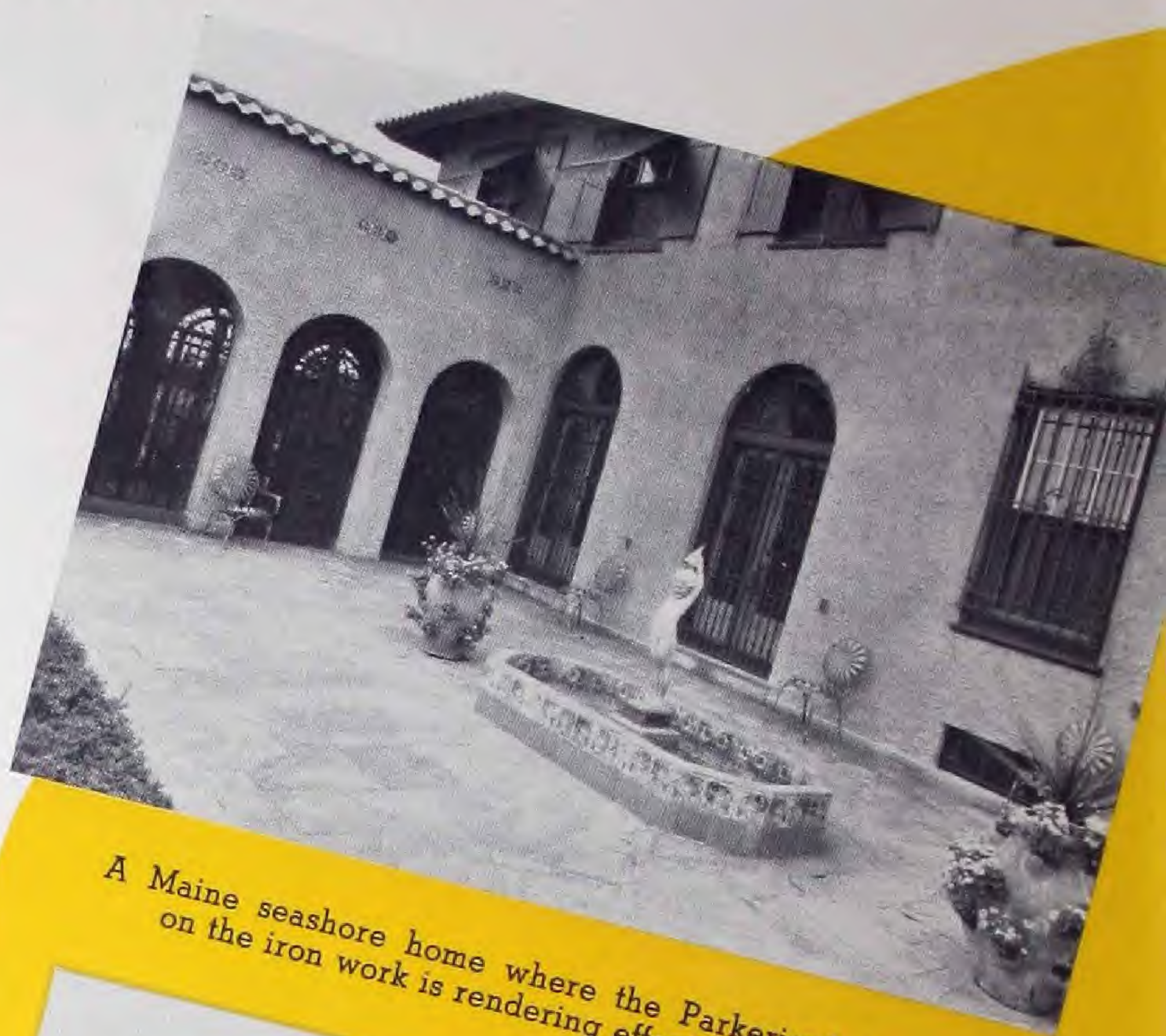
The Parker Process treatment on zinc provides a bond, integral with the zinc surface, thus insulating the paint from the metal. This binds paint, enamel or lacquer to the surface, preventing blistering and peeling. In case the finish should be accidentally scratched the Parker undercoating resists the spread of corrosion to the surrounding area.

ARCHITECTURAL ORNAMENTAL IRON

Since 1915, when the theory of chemically treating iron and steel to make it rust resistant was first introduced by the Parker Rust-Proof Company, Parker Processing has been of unusual interest to builders because it offered a solution to one of their pressing problems—protecting costly iron work from the elements.

This has applied both to the purely ornamental window and door grilles, wrought by many days of skilled labor, as well as the more utilitarian bridge guard rails and protection fences. As the effectiveness of Parker Processing has become fully established there is hardly a building of any consequence erected today that will not include some type of equipment that has the benefit of Parker protection, either knowingly specified by the owner or architect or through the installation of units that have been Parker Processed by the manufacturer, because of his reliance on this type of finish to give his product outstanding merit.

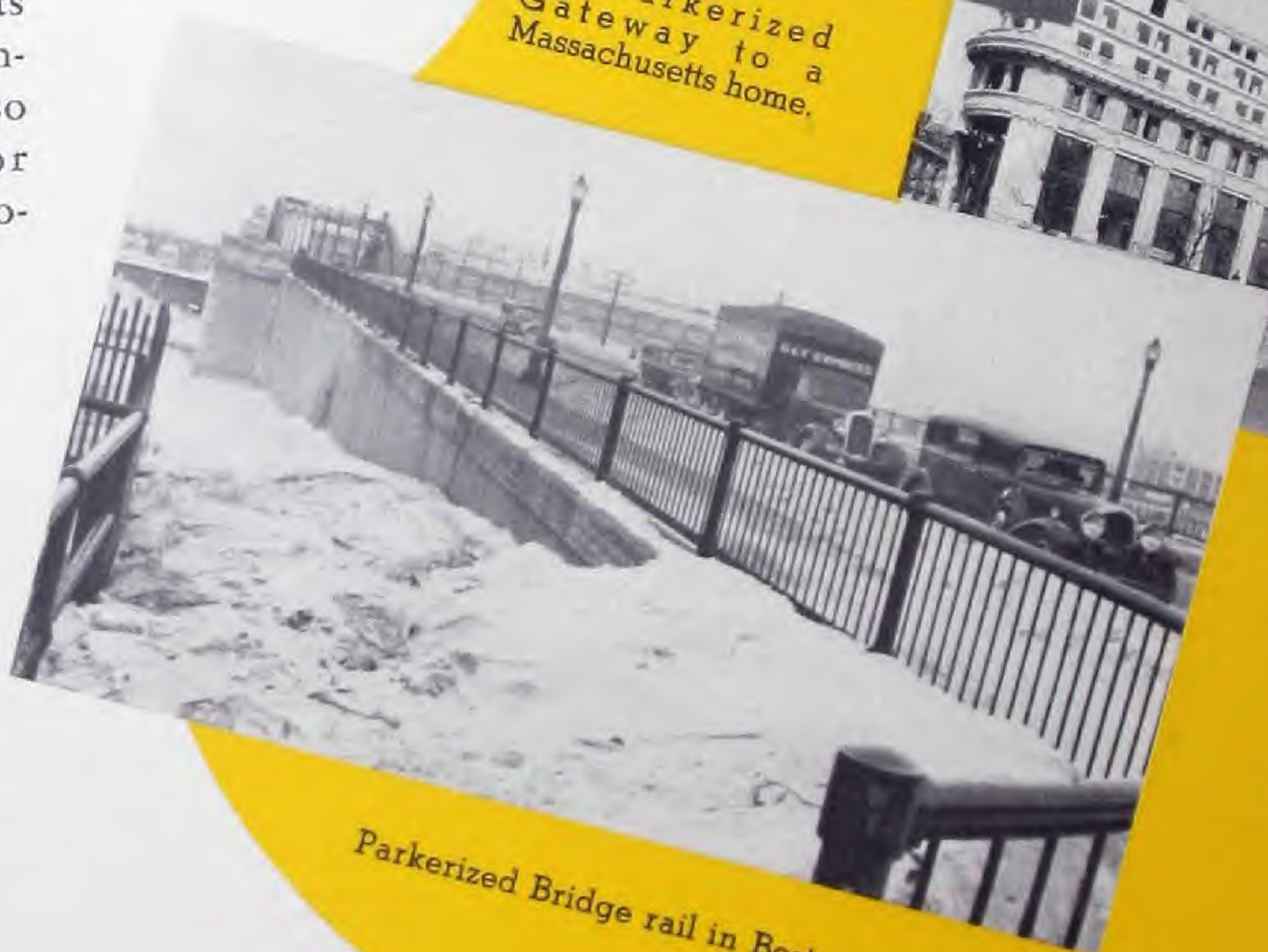
While many manufacturers apply Parker Processes in their own plants, those who are not set up to apply them can have their products treated in some one of the twenty-two Parker jobbing service plants located in the larger industrial centers in all parts of the country, so that whenever Parkerizing or Bonderizing is specified the pro-



A Maine seashore home where the Parkerized finish on the iron work is rendering effective service.



The Parkerized Gateway to a Massachusetts home.



Parkerized Bridge rail in Boston.



A Bank Building in France completely fitted with Parkerized window sash.

SAVED FROM FREQUENT RECONDITIONING



A Delaware School fitted with Parkerized sash.



Typical stair rail protected by Parkerizing. Parkerizing lends protection to the iron fence.



An example of art in wrought iron protected by Parkerizing.

ducer can supply the finish, whether his plant is equipped for it or not. This applies more especially to producers of grilles, doors, stair rails, porch and balcony rails, fences and gates, fire escapes, bridge rails, cast ornamental trim and other items to which Parkerizing is especially adapted.

The illustrations on these pages show only larger items in architecture on which rust prevention is a special advantage. There are many others, such as colonial door hinges and latches, exposed hinge butts and screws, stair kick plates and treads, window guards and fastenings, marquis and signs—wherever exposed iron or steel is used and where rust might endanger appearance or usefulness, Parker Processes are indicated.

Where associated Parker Jobbing Plants are located:

BALTIMORE, MD. Federal Tin Co., Inc.	LOUISVILLE, KY. Republic Welding Company
BOSTON, MASS. Rust-Proofing & Metal Finishing Corp. Cambridge	MILWAUKEE, WIS. Wacho Mfg. Co.
BUFFALO, N. Y. Parker Rust-Proof Co. of Buffalo, Inc.	NEW YORK, N. Y. Pyrene Mfg. Co. Newark, N. J.
CANTON, OHIO G. C. Reiter	PHILADELPHIA, PA. Philadelphia Rust-Proof Company
CHICAGO, ILL. Western Rust-Proof Company	PITTSBURGH, PA. Pittsburgh Electro-Galvanizing Co. Sharpsburg
CINCINNATI, OHIO The Stolle Corp.	ROCKFORD, ILL. Barber-Colman Co.
CLEVELAND, OHIO Parker Rust-Proof Co. of Cleveland	ST. LOUIS, MO. Mid-West Rust-Proof Company
DAYTON, OHIO Dayton Rust-Proofing Company	SAN FRANCISCO, CALIFORNIA Best & Company Alameda
DETROIT, MICH. Parker-Wolverine Company	TORONTO, ONT. Fairgrieve & Son
EVANSVILLE, IND. Evansville Plating Works	TORRINGTON, CONNECTICUT Turner & Seymour Company
KANSAS CITY, MO. Bar-Rusto Plating Corp.	
LOS ANGELES, CAL. L. A. Parkerizing Co.	

Each of these plants is operated by men who have had long experience in metal finishing and are capable of rendering efficient service.

JOIN THE WAR *Against* RUST

ELECTRICAL EQUIPMENT GIVEN BETTER PROTECTION

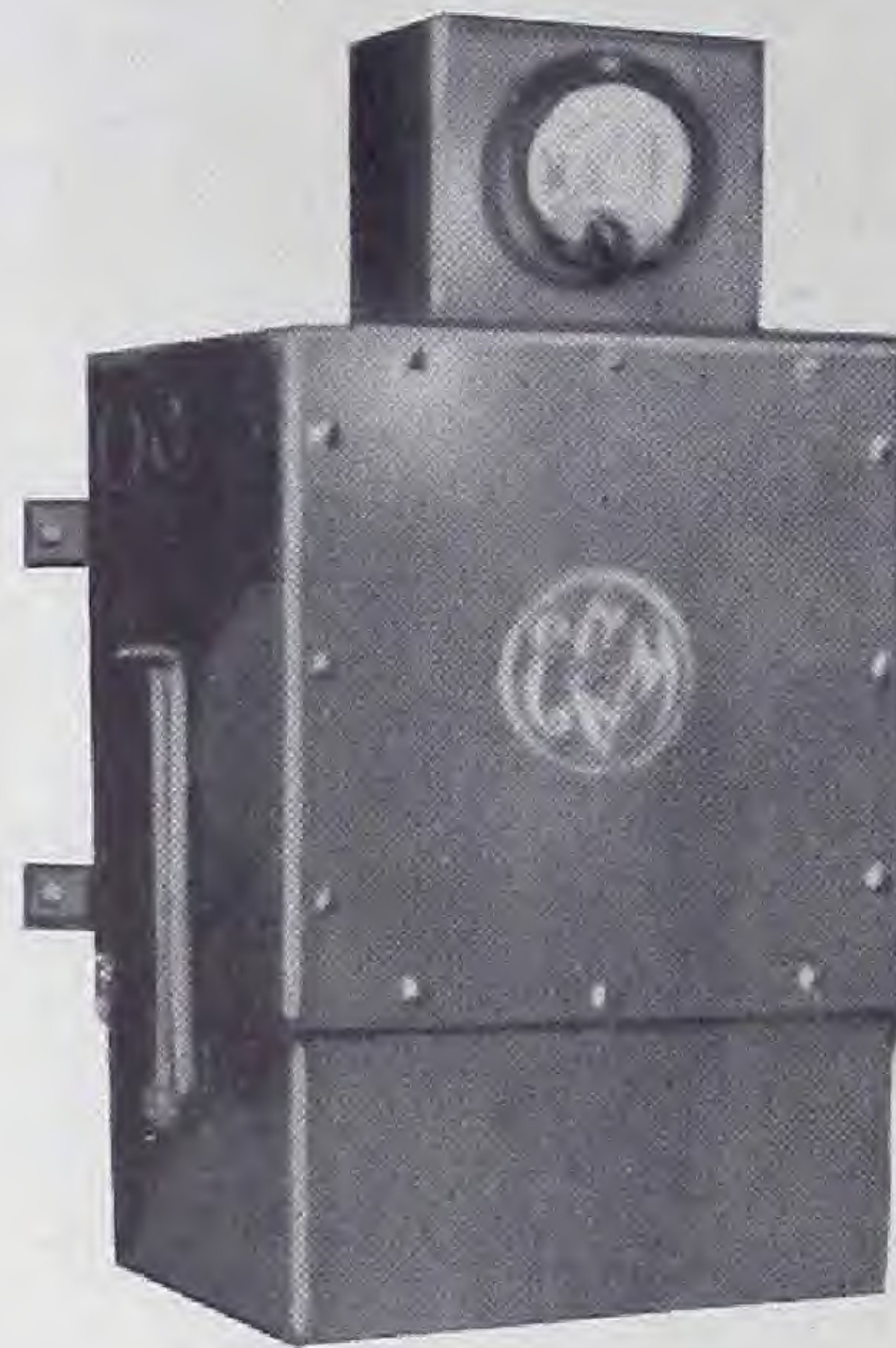
In the building profession safety and accuracy are fundamental. Every step of construction from the rough draft of the plans to the last touch of paint, safety and accuracy must be ever present considerations.

And nowhere is safety more necessary than in the construction and installation of electrical equipment and controls. Safety not only in actual handling of a dangerous element, but also in safeguarding the units themselves in order to assure trouble-free service for the life of meters, thermostats, switch boxes and control cabinets.

In many cases this type of equipment is installed in unheated outbuildings, hallways, basements or actually exposed to the weather. They may be near boilers, over steaming tanks, in laundries, processing plants, creameries, warehouses and other locations where steam, humidity and moisture set up and maintain highly corrosive conditions.

To assure continued fine appearance and rust-free operating condition, this equipment should be Parker Processed, as the Parker Processes give the painted unit anywhere from three to five times longer finish life than where finish is applied over bare metal.

There are many manufacturers who apply Parker Processes as a regular operation, in their finishing routine. Usually such equipment is high grade in other respects, as the use of these processes is proof in itself that the maker is building with an eye to the highest quality in every detail.



Motor Starter made by the Electrical Controller & Manufacturing Company, of Cleveland, Ohio. Cabinet Bonderized for protection from rust.



To compare the protective efficiency of Parker Processing, above is an Ampere Hour Meter, not Parkerized, in use for 16 months. Rust has destroyed the finish.



Another Ampere Hour Meter made by the Sangamo Electric Company, of Springfield, Illinois. Parkerized and in service 12 months. Still in perfect condition.



Hylo Steam Variator, for steam heating control, made by Warren Webster & Co., Camden, N. J. Cabinet Parkerized to protect the metal and provide an adhesive base for the crystalline lacquer finish.

WHY PARKER PROCESSES AFFORD EFFECTIVE PROTECTION



Figure No. 1 is a photomicrograph, enlarged 100 times of a piece of plain sheet steel. It clearly shows the difficulty of securing cohesion of paint to plain steel surfaces. The surface is glossy smooth and with no porosity to afford a satisfactory bond for the applied coating. There is nothing to which paint can cling.



Figure No. 2 illustrates the change in surface accomplished by Bonderite. The coating produced is composed of metallic phosphates, of a crystalline structure. The spaces between the crystals act as microscopic pores, and enamel or lacquer, when applied to this base, quickly penetrates and as it dries is firmly anchored to the steel. Photo enlargement 100 times.

Two of the main difficulties of maintaining paint finishes on metallic surfaces are: Corrosion of the underlying metal and, lack of adhesion of the paint film. Parker Processes meet these difficulties to a greater degree than any other known finishing system, as they are designed especially to provide a corrosion resisting coating of the proper texture to give greater adhesion to applied paint, enamel or lacquer.

The effectiveness of Parker Processes is explained by the fact that they are applied through chemical reaction with the metal. The Processing is accomplished by subjecting the properly cleaned metal to a heated solution, which changes the surface to a non-metallic phosphate coating. This coating is integral with the metal itself and as such is more adherent than any applied coating.

The coating produced is composed of microscopic crystals, which are insoluble in water. As paint is applied, a portion of it is absorbed in the "pores" around the crystals and as the paint dries and hardens it becomes "keyed" to the metal, providing a cohesive bond. The same results can be accomplished on steel, galvanized, galvannealed, zinc die-cast or cadmium surfaces.

This not only assures better adhesion for any applied paint finish, but the Parker coating seals the metal from any moisture that might penetrate the paint film, minimizing the possibility of rust.

The phosphate coating produced by Parker Processes is velvety smooth to the touch and a neutral gray in color. It is especially well adapted to obtaining uniform color effects in final finishes. In addition to increased durability and adhesion, it eliminates the human element and serves as a check on cleaning operations and the possibility of finish failure through faulty surface preparation.

TESTING THE VALUE OF BONDERIZING BY THE SALT SPRAY

While Parker Processes have stood the test of time on many products under practically all kinds of exposure, it is interesting to be able to demonstrate the comparative resistance to weathering of various finishing systems under identical conditions.

The salt spray provides a method of creating in days the effects that might require years of weathering to produce. While there are many different types of accelerated tests, the salt spray has been adopted by industry as one of the standard ways of checking paint finishes.

The two panels at the right were of exactly the same type of steel and both given a typical enamel finish, except one was Bonderized before finishing. They were both intentionally scratched and then tested in the salt spray for 500 hours, with the results plainly shown by the pictures. These are convincing evidence of the rust preventing and paint holding qualities of Bonderizing.



Panel above given enamel finish on plain metal, intentionally scratched and subjected to salt spray for 500 hours. Metal is rusting and finish has failed.



An identical piece of metal, Bonderized and given same enamel finish in panel at left. Intentionally scratched and subjected to salt spray for 500 hours. Finish still in good condition.



Photograph of a plain, untreated steel panel, carrying two coats of baked enamel, pricked and subjected to 228 hours in the salt spray. Light areas show where alkali has destroyed the paint film around rusted abrasion.



Bonderized steel panel, with two coats of baked enamel, pricked and subjected to 228 hours in the salt spray. Slight rust appears where metal was exposed, but no spreading of corrosion or alkali has taken place.

STOPPING THE SPREAD OF RUST AROUND THE SCRATCHES IN PAINT FINISHES



Parker Processes provide an invisible quality that is not discernible to the buyer of architectural equipment but, time and exposure demonstrates its value through lessened reconditioning expense and longer finish life. With a Parker coating lying between the metal and finish, he is relieved of annoying and disfiguring rust development, and is assured more satisfactory service.

Practically all types of products are more or less exposed to accidental injury to the finish, either during installation or in service. They may be scratched, dented or abraded, exposing bare metal at the injured spot.

If bare metal is exposed, rust quickly forms, which leads to serious consequences, if the finish is applied without Parker Processing.

According to the widely accepted electrochemical theory of corrosion, rust will form in such scratches due to a difference of potential on the metal surface which causes the flow of electric current between such areas, thereby dissolving metal with the resultant formation of alkali and rust. If this reaction is allowed to continue, sufficient alkali will form underneath the paint film to loosen the finish and permit rust to form over a much wider area than is apparent on the surface.

Being a non-conductor of such electric currents, the coating produced by Parker Processes counteracts this rust development by stopping the electrolytic action which produces this alkali and confines any rust resulting from a scar to the exposed metal only.

This is one of the major features of Parker Processes and is one of the reasons why manufacturers use them on products on which refinishing would be difficult and costly.

PARKER RUST-PROOF COMPANY
Detroit, Michigan



JOIN THE WAR *Against* RUST

PARKER PROCESSES

**FOR PROTECTION FROM RUST
AND PAINT ADHESION**

**PARKER RUST-PROOF CO.
DETROIT - MICHIGAN**

